



# THE MOMBASA POLYTECHNIC UNIVERSITY COLLEGE

(A CONSTITUENT COLLEGE OF JKUAT)

*Faculty of Engineering and Technology*

## DEPARTMENT OF MECHANICAL AND AUTOMOTIVE ENGINEERING

Certificate in Mechanical Engineering (Production Option)  
Certificate in Mechanical Engineering (Plant Option)  
Certificate in Mechanical Engineering (Automotive Option)  
Certificate Mechanical in Chemical Engineering

**EME 1104**

**WORKSHOP TECHNOLOGY I**

YEAR 1 SEMESTER I

SPECIAL/SUPPLEMENTARY EXAMINATIONS

**SERIES:** MARCH, 2012

**TIME:** 2 HOURS

### **Instructions to Candidates:**

You should have the following for this examination:

- Answer Booklet
- Scientific Calculator

This paper consists of **FIVE** Questions. Answer **ANY THREE** Questions.

This paper consists of **THREE printed pages**.

### Question ONE

- (a) Sketch the vernier calipers and label the parts. **(7 Marks)**
- (b) Sketch part of the vernier calipers indicating the following readings:
- (i) 25.06
  - (ii) 25.26
- (5 Marks)**
- (c) Explain, with suitable illustrations, the following sheet-metal joints:
- (i) Lap joint
  - (ii) Countersunk lap joint
  - (iii) Seam joint
  - (iv) Modified lap joint
- (8 Marks)**

### Question TWO

- (a) Sketch the combination set and label any **FOUR** parts. **(8 Marks)**
- (b) Name and sketch **THREE** hand tools that are supported on the surface plate. **(6 Marks)**
- (c) Explain with suitable illustrations the use of the following tools:
- (i) Try square to mark lines perpendicular to an edge.
  - (ii) Centre square to locate the centre of a round bar.
  - (iii) Odd-leg calipers to mark lines parallel to an edge.
- (6 Marks)**

### Question THREE

- (a) (i) Sketch the micrometer screw gauge and label six parts.
- (ii) State **FOUR** precautions to be taken in the use and storage of the micrometer screw gauge in order to ensure accurate readings and long life for the tool. **(10 Marks)**
- (b) Sketch part of the micrometer screw gauge indicating readings of:
- (i) 12.15
  - (ii) 12.65
- (5 Marks)**

(c) Sketch the following tools and state one use for each:

- (i) Angle plate
- (ii) Vee block

**(6 Marks)**

#### **Question FOUR**

(a) (i) Sketch the hand tap.

(ii) Explain the procedure for creating internal thread using a tap.

**(12 Marks)**

(b) Explain in point form the procedure for riveting.

**(8 Marks)**

#### **Question FIVE**

(a) (i) Sketch the hand hacksaw.

(ii) Give **FOUR** causes of hacksaw blade breakage.

**(12 Marks)**

(b) (i) List **FOUR** precautions which should be observed in the use and storage of files.

(ii) Explain what is meant by 'pinning' of files.

**(8 Marks)**